PAPIER-HANDLUNG

Dr. Gottlieb Adler

Hydrostatik u. Hydrodynamik

II. 5. 91. MSmoluchowski

F. POLLY, IV. KAROLINENG. 23.

9445

25/4 B.J

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With Thomson [illegible]

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Hydrostatik

Capillaritätstheorie

Hydrodynamische [illegible] [Euler]

[illegible] Hydrodynamik: [illegible]

[Helmholtz]

[illegible] [illegible]

[illegible] math. [illegible]

[illegible]

Bjerknes [illegible] (2)

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1\. [illegible]

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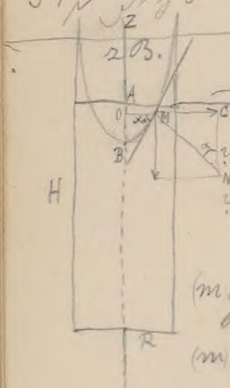
2 B.



Cyl. rotiert [illegible]

[illegible] Curve

$(mg \quad \left(\frac{\sim}{m=1}\right)$

$(m)\frac{v^2}{x} \qquad v = \frac{2x\pi}{T}$

$= \frac{4\pi^2}{T^2}\cdot x$

$\frac{dz}{dx} = \operatorname{tg}\alpha = \frac{mc}{g} = \frac{4\pi^2}{gT^2}x \qquad z = \frac{2\pi^2}{gT^2}x^2 + K$

Parabel

$x=0 \mid z = K \quad K = OB$

[illegible]

AB = ?

[illegible] Vol. [illegible]

$\pi r^2 H$

$$v = 2\pi \int_{x=0}^{x=r} z\,x\,dx = 2\pi \int_0^r \left[Kx + \frac{2\pi^2}{gT}x^3\right]dx =$$

$$= 2\pi\left[\frac{x^2}{2} + \frac{2\pi^2}{gT}\cdot\frac{x^4}{4}\right]_0^r =$$

$2\pi x\,dx \cdot z$

$$= K r^2\pi + \frac{4\pi^3}{gT}\,\frac{r^4}{4}$$

$$K r^2\pi + \frac{\pi^3 r^4}{gT} = \pi r^2 H$$

$$K + \frac{\pi^2 r^2}{gT} = H$$

$$\underbrace{H - K}_{AB} = \frac{\pi^2 r^2}{gT}$$

$$AB = \frac{\pi^2 r^2}{gT}$$

[illegible]

2 OB.

[illegible]

K = OB

2).? [illegible] [illegible]

[illegible]

[illegible] [Robertson] [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] parallelepiped [illegible]

[illegible] $p = f(x,y,z)$ [illegible]

[illegible] $dx\,dy \cdot p \qquad - p'\,dx\,dy$

$$dx\,dy\,[p - p']$$

$p = f(x,y,z)$

$p' = f(x,y,z+dz) = f(x,y,z) + \frac{\partial f}{\partial z}\,dz$

$$= p + \frac{\partial p}{\partial z}\,dz$$

$p - p' = -\frac{\partial p}{\partial z}\,dz$

$Z = -\frac{\partial p}{\partial z}\,dx\,dy\,dz$

[illegible]

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[illegible]

[illegible]

$[illegible] = [illegible]\, X$ [illegible]

Y

$[illegible] \; Z$

[illegible]

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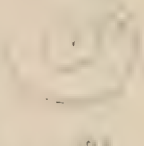

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$= -\gamma$ [illegible]

γ [illegible] $= \gamma^{A}$

$\rho = e^{A} e^{-\gamma h}$ [illegible]

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[illegible] $= \frac{[illegible]}{[illegible]} \phi = \frac{1}{\sqrt{[illegible]}} \left[[illegible] \right]$

[illegible] $=$ [illegible]

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$2 =$ [illegible] $\left[[illegible] - [illegible] \right]$ [illegible]

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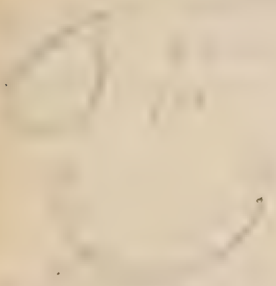

$A =$

(2 - 1)

$= p$

$\delta h = \ldots$

$h = \frac{\beta}{\ldots}\left[\frac{l}{3} - \ldots\right]$

$R \qquad R = \ldots$

$\frac{\beta}{s}\left[\frac{2}{R} - \ldots\right]$ $\qquad D > 2$

$> \ldots$

[illegible]

[illegible]

[illegible]

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9.5

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$\sum$ [illegible]

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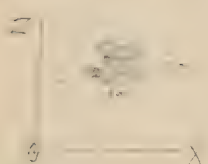

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$- [illegible]^2$

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[illegible] $= \frac{[illegible]}{[illegible]}$ [illegible]

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[illegible] $+ \frac{[illegible]}{[illegible]}$ [illegible]

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$x = -$ [illegible]

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2 [illegible]

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$x^2 = \frac{[illegible]}{2}$ [illegible]

[illegible]

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2. [illegible]

[illegible]

$(x-y)^2 =$ [illegible]

$y =$ [illegible]

$y'' =$ [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

$\frac{dy}{dx} =$ [illegible]

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$\triangle \cdot = 0$

∇

$\frac{\partial \rho}{\rho} = \ldots \frac{p_0}{\rho_0} \, d \ldots$

$\frac{\partial}{\partial t} \ldots - \frac{\rho}{\rho_0} \ldots$

$\frac{\partial^2 \rho}{\partial t} \ldots \frac{\partial}{\partial t} \frac{1}{\rho}$

$\frac{\partial}{\partial t} \ldots$

$\frac{\partial^2}{\partial t^2} \ldots$

[illegible]

$\int U =$ [illegible]

[illegible]

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$\frac{\partial p}{\partial x} = \text{const.}$ B.J. [illegible]

$a = -\frac{p_1 - p_0}{l}$ $\mu \frac{\partial}{\partial r}\left(r\frac{\partial u}{\partial r}\right) = ar$

$$r\frac{\partial u}{\partial r} = \frac{ar^2}{2} + b$$

$$\frac{\partial u}{\partial r} = a\frac{r}{2} + \frac{b}{r}$$

$$\mu u = a\frac{r^2}{4} + b\log r + c$$

$b = 0$ $\mu u = \frac{ar^2}{4} + c$

$$u = -\frac{p_1 - p_0}{\mu l}\frac{r^2}{4} + c$$

[illegible] $r = R$ | $u = u_0$ $u \to$ [illegible]

$c = \frac{R^2}{4} - \frac{r^2}{4}$ [illegible]

$\int_0^R 2\pi r\,dr = q$ $\boxed{u = \text{const.}}$ [illegible]

Tyndall [illegible]

$$q = 2\pi \frac{p_1 - p_0}{4\mu l}\int_0^R \left(\frac{R^2}{2} - \frac{r^2}{4}\right) r\,dr$$

$$= \frac{p_1 - p_0}{2\mu l}\pi\left(\frac{R^2 r^2}{2} - \frac{r^4}{4}\right)$$

$$q = \pi\frac{p_1 - p_0}{8\mu l}R^4$$

Helmholtz μ ~ [illegible] 24°C 0·014061

$u = \frac{a}{\ldots}\left(\frac{R^2}{4} - \frac{r^2}{4}\right)$ [illegible]